Standard Operating Procedure
Refuse Disposal Division

ENVIRONMENTAL SERVICES DEPARTMENT

Groundwater Monitoring

GeoTech & Orion pH Meter Calibration

ConCal Two-Point Manual Calibration:

***NOTE –** *During manual calibration, use temperature corrected pH buffer values.*

1. Press the 'CAL' key until the ConCal display indicator is lit. 'ASY' will appear on the display.
2. Set the temperature of the buffers using the ⌃⌃ or ⌄⌄ key.
3. Triple rinse electrode with distilled water.
4. Immerse the electrode into a neutral buffer (pH of solution between 7.0 +/- 0.5).
   - First buffer should be pH 7;
   - Second buffer should be pH 4.
5. Press the 'RUN/ENTER' key, then use the ⌃⌃ or ⌄⌄ key to set the temperature corrected pH value of the buffer solution.
6. Press the 'RUN/ENTER' key and the E_O value will be displayed in mV.
7. Press the 'RUN/ENTER' key again, 'SLO' should appear on display. Rinse the electrode and immerse into the second buffer.
8. Press the 'RUN/ENTER' key, then use the ⌃⌃ or ⌄⌄ key to set the temperature corrected pH value of the buffer solution.
9. Press the 'RUN/ENTER' key – the slope will be displayed in mV/pH.
10. Press the 'RUN/ENTER' key again – the E_O value will be displayed in mV.
11. Rinse electrode and immerse into sample solution, press the 'RUN/ENTER' key to start pH measurement.

ConCal one-Point Manual Calibration:

***NOTE –** *One-point manual calibration uses the last stored slope in memory. Perform a two-point calibration to store the correct slope before one-point calibration.*

1. Press the 'CAL' key until the ConCal display indicator is lit. 'ASY' will appear on the display.
2. Set the temperature of the buffer using the ⌃⌃ or ⌄⌄ key.
3. Immerse the electrode into the buffer (use pH 7 buffer for one point calibration).
4. Press the 'RUN/ENTER' key, then use the ⌃⌃ or ⌄⌄ key to set the temperature corrected pH value of the buffer solution.
5. Press the 'RUN/ENTER' key and the E_O value will be displayed in mV.
6. Rinse electrode and immerse into the sample solution – press the pH/mV key to start pH measurement.

Benefit of Compliance to Instruction:

- Provides quality assurance and quality control of field data
- Accurate field data is necessary in order to meet sampling protocol requirements

Consequence of Non-Compliance to Instruction:

- Lack of calibration leads to inaccurate pH measurements
- Inaccurate data can mask significant pH changes, as well as water quality changes.
- Violation of sampling protocols invalidates data

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